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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/992,869	11/14/2001	Tomihisa Saitou	NSG-205US	5987

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EXAMINER	
WORKU, NEGUSSIE	
ART UNIT	**PAPER NUMBER**
2625	

DATE MAILED: 08/25/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/992,869	SAITOU ET AL.	
	Examiner	Art Unit	
	Negussie Worku	2626	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *June 23, 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) *1-11* is/are rejected.

7)☒ Claim(s) *21-30* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *14 November 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

DOUGLAS QTRAN
PRIMARY EXAMINER

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Applicant's arguments with respect to claimed application have been considered but are moot in view of the new ground(s) of rejection, and therefore, the Office action is non-final.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 1, 2, 7 and 8 are failed to particularly point out and distinctly claim the subject matter which applicant regard as the invention. In particular claim 1 has failed define and/or is not understood to on ordinary skill in the art what the claimed invention tray to achieve in the claimed invention.

Claims 2-6, 9-11, are also rejected as being dependent on the rejected independent clams 1, 2, 7, 8.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject

matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Voser (USP 6,172,745), in view of Nagata et al (USP 6,239,421).

With regard to claim 1, Voser et al. discloses an image reading apparatus (fig 1) for reading a light-transmission original, (document 2 of fig 1), comprising a light guide plate (light guide plate 16 and 18 of fig 1) in which, an area light source (source array 8 and 10 of fig 1) for irradiating light to said light-transmission original (bank note 2 of fig 1, col.4, lines 40-60),

Voser et al. does not disclose a LED device including red, green, and blue-LED chips is arranged to a peripheral side surface of light guide plate.

Nagata et al., in the same area of an illuminator of line array type to be used in an image reading apparatus (fig 1-4), teaches a LED device (light source 6 of fig 2) including red, green, and blue-LED chips (a LED light source 63 of fig 2) is arranged to a peripheral side surface of light guide plate (light guide plate 61 of fig 2, col.7, lines 38-45).

Therefore, it would have been obvious to a person with ordinary skill in the art at the time the invention was made to have modified the image reading and illumination apparatuses of Voser et al. to include: at least one of a LED device including red, green, and blue-LED chips is arranged to a peripheral side of the surface.

It would have been obvious to a person with ordinary skill in the art at the time the invention was made to have modified the image reading and illumination device of

Voser by the teaching of Nagata et al., because of the following reason: it would have enabled users to avoid unevenness in the illumination intensity on the surface of the manuscript, particulatly in the longitudinal direction, which may cause errors in reading the image, therefore, it is desirable for the intensity of illumination to be as uniform or as even as possible.

With regard to claim 2, Voser et al. discloses an image reading apparatus (fig 1) for reading a light-transmission original, (document 2 positioned on platen glass of fig 1), comprising: a case (reading device 1 of fig 5) the upper surface thereof having a transparent plate (platen glass 1) on which said light-transmission original is placed (platen glass fig 1, for supporting the original 2 of fig 1 to be read); a contact image sensor (sensing module 4 of fig 3, is equivalent to contact image sensor provided in the fig 1 of reading device) provided in said case, which can be reciprocated moved for reading and scanning, see (col.7, lines 15-20) said contact image sensor (4 of fig 3) comprising an erect unity-magnification optical system (lens 20 of fig 1) and a line sensor (4 of fig 3); and an area light source (light source 10 of fig 1) for irradiating light to said light-transmission original.

Voser et al. does not disclose a LED device including red, green, and blue-LED chips is arranged to a peripheral side surface of light guide plate.

Nagata et al., in the same area of an illuminator of line array type to be used in an image reading apparatus (fig 1-4), teaches a LED device (light source 6 of fig 2) including red, green, and blue-LED chips (a LED light source 63 of fig 2) is arranged to

a peripheral side surface of light guide plate (light guide plate 61 of fig 2, col.7, lines 38-45).

Therefore, it would have been obvious to a person with ordinary skill in the art at the time the invention was made to have modified the image reading and illumination apparatuses of Voser to include: at least one of a LED device including red, green, and blue-LED chips is arranged to a peripheral side of the surface.

It would have been obvious to a person with ordinary skill in the art at the time the invention was made to have modified the image reading and illumination device of Voser by the teaching of Nagata et al., because of the following reason: it would have enabled users to avoid unevenness in the illumination intensity on the surface of the manuscript, particularly in the longitudinal direction, which may cause errors in reading the image, therefore, it is desirable for the intensity of illumination to be as uniform or as even as possible.

With regard to claim 3, Voser discloses an image reading apparatus (fig 1), wherein, simultaneously with an operation for reading and scanning by said contact image sensor, (sensor 4 of fig 1, is equivalent to a contact image sensor).

Koshimizu does not disclose the red, green, and blue-LED chips are sequentially lit on.

Nagata et al., in the same area of an illuminator of line array type to be used in an image reading apparatus (fig 16), teaches LED chips (light source comprising [blue, red, green LED chips fig 6, including red, green, and blue-LED chips is arranged to a

peripheral side surface thereof), which are sequentially lit (which reads on being energized one by one) see (col.9, lines10-20).

Therefore, it would have been obvious to a person with ordinary skill in the art at the time the invention was made to have modified the image reading and illumination apparatuses of Voser to include: the red, green, and blue-LED chips are sequentially lit on.

It would have been obvious to a person with ordinary skill in the art at the time the invention was made to have modified the image reading and illumination device of Voser by the teaching of Nagata because of the following reason: it would have provided users to avoid unevenness in the illumination intensity on the surface of the manuscript, which may cause errors in reading the image, and therefore, it is desirable for light source to lit the intensity of illumination in a sequential order as needed by user to get a uniform or even illumination on the read image as much as possible.

With regard to claim 4, Voser discloses an image reading apparatus (fig 1), further comprising: a linear light source (liner light source 10 of fig 1) for irradiating light to a sheet original in said contact image sensor, (sensing head 4 of fig 1, an equivalent to contact image sensor) wherein said area light source (whole area light source 10 of fig 1) is incorporated in an original cover, and the light-transmission original is read by lighting on said area light source (whole area light source 10 and 8 of fig 1, se col.5, lines 12-15) and the sheet original is read by lighting on said linear light source (linear light source 8 and 10 of fig 1, see col.5, lines 3-5).

With regard to claim 5, Voser discloses an image reading apparatus (fig 1), wherein the dimension of said area light source (whole area light source 10 and 8 of fig 6) is equal to the sum of an integer multiple of the dimension of one frame of the light-transmission original and spaces between frames, (it is inherent to accommodate the area light source in a way it fit in the main body of the apparatus).

With regard to claim 6, Voser discloses an image reading apparatus (fig 1), further comprising: a light-on circuit which is shared to light on said area light source (whole area light source 8 and 10 fig 1) and said linear light source; and a switch which is switched to transmit an output of said light-on circuit to said linear light source or said area light source (light source control unit 32 of fig 1).

With regard to claim 7, Voser discloses an area light source (10 and 8 of fig 1) for irradiating light to a light-transmission original in an image reading apparatus (fig 1) for reading the light-transmission original, see (col.5, lines 10-15), comprising: a light guide plate (16 of fig 1) for scattering or reflecting light on a rear surface thereof; a white bottom plate (lower cover of fig 1) for covering the rear surface of said light guide plate (lower cover 1 of fig 1, covers the area surface of the light guide, as shown in fig 1); a white case frame (the main body of reading apparatus of fig 1) for covering a side surface of said light guide plate (16 of fig 3); a scattering sheet (light shield sheet 30 of

fig 1) for covering an upper surface of said light guide plate, (16 and 18 of fig 1) see (col.4, lines 60-65).

Voser et al. does not disclose a LED device including red, green, and blue-LED chips is arranged to a peripheral side surface of light guide plate.

Nagata et al., in the same area of an illuminator of line array type to be used in an image reading apparatus (fig 16), teaches LED chips (light source comprising [blue, red, green LED chips fig 6, including red, green, and blue-LED chips is arranged to a peripheral side surface thereof), which are sequentially lit (which reads on being energized one by one) see (col.9, lines10-20).

Therefore, it would have been obvious to a person with ordinary skill in the art at the time the invention was made to have modified the image reading and illumination apparatuses of Voser to include: the red, green, and blue-LED chips are sequentially lit on.

It would have been obvious to a person with ordinary skill in the art at the time the invention was made to have modified the image reading and illumination device of Voser by the teaching of Nagata because of the following reason: it would have provided users to avoid unevenness in the illumination intensity on the surface of the manuscript, which may cause errors in reading the image, and therefore, it is desirable for light source to lit the intensity of illumination in a sequential order as needed by user to get a uniform or even illumination on the read image as much as possible.

With regard to claim 8, Voser discloses an area light source (fig 1) for irradiating light to a light-transmission original in an image reading apparatus (fig 1) for reading the light-transmission original, see (abstract), comprising: a light guide plate (16 and 18 of fig 1) for scattering or reflecting light on a rear surface thereof; a white bottom plate (lower cover 36 of fig 1) for covering the rear surface of said light guide plate (lower cover 5 of fig 4, covers the area surface of the light guide, as shown in fig 1); a white case frame (the main body of reading apparatus of fig 1) for covering a side surface of said light guide plate (16 and 18 of fig 1); a scattering sheet (sheet 2 of fig 1) for covering an upper surface of said light guide plate,(light guide 16 and 18 of fig 1) see (col.8, lines 39-41).

Voser does not disclose and at least one LED device including red-, green-, and blue-LED chips, which is arranged at a peripheral side surface of said light guide plate.

Nagata et al., in the same area of an illuminator of line array type to be used in an image reading apparatus (fig 16), teaches LED chips (light source comprising [blue, red, green LED chips fig 6, including red, green, and blue-LED chips is arranged to a peripheral side surface thereof), which are sequentially lit (which reads on being energized one by one) see (col.9, lines10-20).

Therefore, it would have been obvious to a person with ordinary skill in the art at the time the invention was made to have modified the image reading and illumination apparatuses of Voser to include: the red, green, and blue-LED chips are sequentially lit on.

It would have been obvious to a person with ordinary skill in the art at the time the invention was made to have modified the image reading and illumination device of Voser by the teaching of Nagata because of the following reason: it would have provided users to avoid unevenness in the illumination intensity on the surface of the manuscript, which may cause errors in reading the image, and therefore, it is desirable for light source to lit the intensity of illumination in a sequential order as needed by user to get a uniform or even illumination on the read image as much as possible.

6. Claims 9 and 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over voser (USP 6,172,745) as applied to claims 1-8, above, and further in view of Ishikawa (USP 5,921,651).

With respect to claim 9, Voser as modified by Nagata still does not teach an area light source wherein a dot pattern of a light scatterer is formed on a rear surface of said light guide plate.

Ishikawa, in the same area of an area light source teaches an image area light source (1 as shown in fig 5) wherein a dot pattern of a light scattered is formed on a rear surface of said light guide plate (guide plate 2 of fig 1, dot pattern is defined for the entire rear surface of the light guide, see col.6, line 25-30).

Therefore, it would have been obvious to a person with ordinary skill in the art at the time the invention was made to have modified the image reading and illumination

apparatuses of Voser to include: dot pattern of a light scattered is formed on a rear surface of said light guide plate.

It would have been obvious to a person with ordinary skill in the art at the time the invention was made to have modified the illumination device of Voser as modified by Furusawa by the teaching of Ishikawa for the purpose of providing users to avoid unevenness in the illumination intensity on the surface of the manuscript, which may cause errors in reading the image, therefore, it is desirable for the intensity of illumination to be as uniform or even as possible, as discussed by Ishikawa see (col.1, lines 53-58).

With respect to claim 10, Voser as modified by Nagata still does not teach wherein said dot pattern is a circular dot pattern.

Ishikawa, in the same area of an area light source teaches an image area light source (1 as shown in fig 5) wherein said dot pattern is a circular dot pattern, (guide plate 2 of fig 1, a circular dot pattern is defined for the entire rear surface of the light guide, see col.6, line 25-30).

Therefore, it would have been obvious to a person with ordinary skill in the art at the time the invention was made to have modified the image reading and illumination apparatus of Voser as modified to include: a circular dot pattern.

It would have been obvious to a person with ordinary skill in the art at the time the invention was made to have modified the illumination device of Voser as modified by Nagata by the teaching of Ishikawa for the purpose of enables users to avoid unevenness in the illumination intensity on the surface of the manuscript, which may

cause errors in reading the image, therefore, it is desirable for the intensity of illumination to be as uniform or even as possible, as discussed by Ishikawa see (col.1, lines 53-58).

7. Claim 11- is rejected under 35 U.S.C. 103(a) as being unpatentable over Voser (USP 6172745), in view of Yamamoto (USP 6,084,983).

With respect to claim 11, voser teaches a shading correcting apparatus (fig 1) for correcting the variation of sensitivities of a line sensor (sensor module 4 of fig 1), and the variation of luminance's of an area light source (light source 8 and 10 of fig 1) in an image reading apparatus, see (col.5, lines 5-15).

Voser does not teach a correction coefficient calculating unit for calculating a correction coefficient for electrical weighting so that an output value of an electrical signal outputted by said line sensor becomes constant, by lighting on any of red-, green- and blue-LED chips in said area light source, scanning an image in a state in which, on the transparent plate, there is no original or a semitransparent film is placed, and receiving light from said area light source; a memory for storing said correction coefficient for a 2-dimensional position of each pixel in said line sensor and the light emission of the red-, green-, and blue-LED chips; and a shading correcting unit for reading the correction coefficient from said memory upon actually reading an image and multiplying the output value of the electrical signal of each pixel, which is outputted by said line sensor, to the correction coefficient corresponding to each pixel.

Yamamoto, in the same area image reading device and method (fig 1-3) discloses a correction coefficient calculating unit (103 of fig 3) for calculating a correction coefficient for electrical weighting so that an output value of an electrical signal outputted by said line sensor (30 of fig 1) becomes constant, see (col.4, lines 49-65) by lighting on any of red-, green- and blue-LED chips in said area light source, (light source 20 of fig 2, with light emitting diodes 21r, 21G and 21B) scanning an image in a state in which, see (col.4, lines 18-25) on the transparent plate, (object to be read is supported by frame 11 of fig 2) there is no original or a semitransparent film is placed, and receiving light from said area light source (light source 20 of fig 2); a memory (memory 46 of fig 1) for storing said correction coefficient for a 2-dimensional position of each pixel in said line sensor, see (col.3, lines 50-55), and the light emission of the red-, green-, and blue-LED chips , see (col.4, lines 18-25); and a shading correcting unit (image processing circuit 45 of fig 1, see col.5, lines 25-30) for reading the correction coefficient from said memory (memory 46 of fig 1), upon actually reading an image and multiplying the output value of the electrical signal of each pixel, which is outputted by said line sensor, to the correction coefficient corresponding to each pixel, see (col.6, lines 30-38).

Therefore, it would have been obvious to a person with ordinary skill in the art at the time the invention was made to have modified the image reading and illumination apparatuses of Voser include: a correction coefficient calculating unit for calculating a correction coefficient for electrical weighting so that an output value of an electrical signal outputted by said line sensor becomes constant, by lighting on any of red-, green-

and blue-LED chips in said area light source, scanning an image in a state in which, on the transparent plate, there is no original or a semitransparent film is placed, and receiving light from said area light source; a memory for storing said correction coefficient for a 2-dimensional position of each pixel in said line sensor and the light emission of the red-, green-, and blue-LED chips; and a shading correcting unit for reading the correction coefficient from said memory upon actually reading an image and multiplying the output value of the electrical signal of each pixel, which is outputted by said line sensor, to the correction coefficient corresponding to each pixel.

It would have been obvious to a person with ordinary skill in the art at the time the invention was made to have modified the image reading and processing illumination device of Voser by the teaching of Yamamoto for the purpose of providing users to avoid unevenness in the illumination intensity on the surface of the manuscript, and the correction coefficient is used for correcting an error generated mainly due to unevenness in the radiation of light from the light source, may cause errors in reading the image, therefore, it is desirable for the intensity of illumination to be as uniform or even as possible, as discussed by Yamamoto see (col.1, lines 25-30).

Claims objected to having allowable subject matter

8. Claims 12-30 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

With respect to claim 12-20, none of the reference searched and of the record teaches or suggests a shading correcting apparatus for correcting the variation of sensitivities of a line sensor and the variation of luminance of an area light source in an image reading apparatus, comprising: a correction coefficient calculating unit for calculating a correction coefficient for electrical weighting so that an output value of an electrical signal outputted by said line sensor becomes constant, by lighting on any of red-, green-, and blue-LED chips in said area light source, scanning an image in a state in which, on the transparent plate, there is no original or a semitransparent film is placed, and receiving light from said area light source; a memory for storing said correction coefficient for a 2-dimensional position of each pixel in said line sensor and the light emission of the red-, green-, and blue-LED chips; and a shading correcting unit for reading the correction coefficient from said memory upon actually reading an image and multiplying the output value of the electrical signal of each pixel, which is outputted by said line sensor, to the correction coefficient corresponding to each pixel.

With respect to claim 21, none of the reference searched and of the record teaches or suggests a shading correcting method for correcting the variation of sensitivities of a line sensor and the variation of luminance of an area light source in an image reading apparatus according, comprising the steps of: lighting on any of red-, green-, and blue-LED chips in said area light source, scanning an image by said contact image sensor in a state in which, on the transparent plate, there is no original or a semitransparent film is placed, and receiving light from said area light source and outputting an electrical

signal by said line sensor; calculating a correction coefficient for electrical weighting so that an output value of the electrical signal outputted by said line sensor becomes constant; and storing said correction coefficient for a 2-dimensional position of each pixel in said line sensor and the light emission of the red-, green-, and blue-LED chips and using the stored correction coefficient upon actually reading the image.

With respect to claims 22-30, none of the reference searched and of the record teaches or suggests a shading correcting method for correcting the variation of sensitivities of a line sensor and the variation of luminance of an area light source in an image reading apparatus, comprising the steps of: lighting on any of red-, green-, and blue-LED chips in said area light source, scanning an image by said contact image sensor in a state in which, on the transparent plate, there is no original or a semitransparent film is placed, and receiving light from said area light source and outputting an electrical signal by said line sensor; calculating a correction coefficient for electrical weighting so that an output value of the electrical signal outputted by said line sensor becomes constant; and storing said correction coefficient for a 2-dimensional position of each pixel in said line sensor and the light emission of one or two LED chips of the red-, green-, and blue-LED chips as a correction standard and using the stored correction coefficient for correction upon actually reading the image.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Negussie Worku whose telephone number is 571-272-7472. The examiner can normally be reached on 9am-6pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kimberly Williams can be reached on 571-272-7471. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Negussie Worku
8/10/06

DOUGLAS Q. TRAN
PRIMARY EXAMINER